

USB Converter Controlled via HTML

Paul Goossens

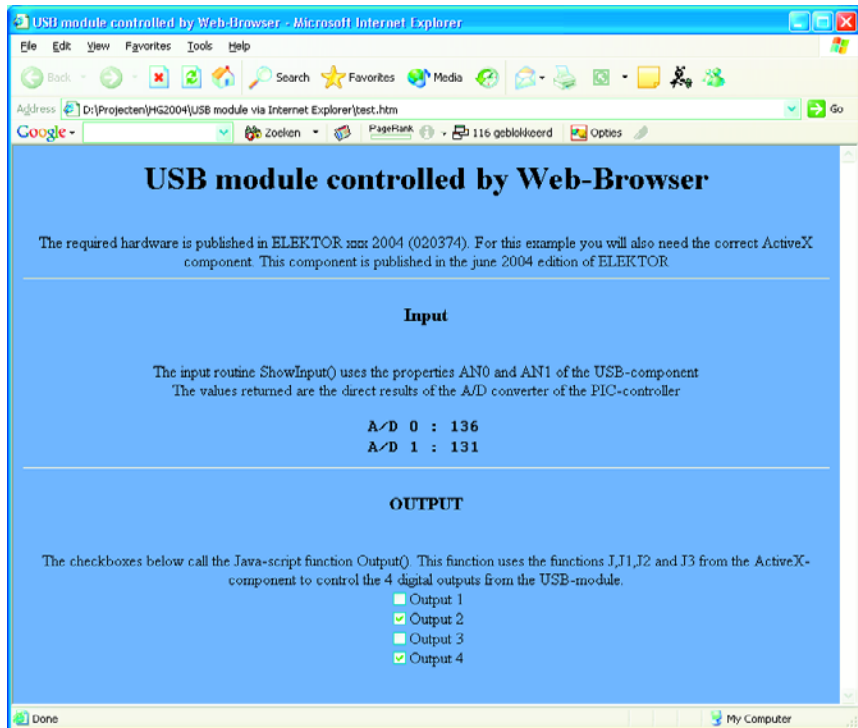
In this issue we publish an ActiveX component, which can be used to control the USB analogue converter (*Elektor Electronics*, November 2003). In this way, programmers can use C/C++, Delphi, VB etc. to include the converter in their own application.

It is maybe less well known that these ActiveX components can also be used from web browsers that support scripts and ActiveX. For this reason we've created an example HTML file, which uses JavaScript and ActiveX to control the USB converter. This file is available as a Free Download from <http://www.elektor-electronics.co.uk/> (044034-11).

To place an ActiveX component onto a web page you have to make use of the <OBJECT> tag. In this a name and a CLASSID have to be specified. This CLASSID is a number that indicates which type of ActiveX component should be used. Since it is impractical to remember all these number by heart, Microsoft have made a program available called ActiveX Control Pad. With this program it becomes easy to place an ActiveX component onto a web page and adapt its properties to your own liking.

Now that we've placed the ActiveX component onto the page, we can use JavaScript to send commands to this component or get it to return information. Here the JavaScript part sets up a communication channel with the USB converter when the page is opened. It also starts a timer that calls the function ShowInput() every half a second.

The functions in JavaScript are very similar to those found in C. The three functions used in this example are simple enough



for anyone with a bit of programming experience to follow. An important detail that should be mentioned is that every ActiveX component on the page is given a name during the initialisation. In this case, we have given the meaningful name 'USB' to the component that takes care of the communication with the USB module. The two labels on this page have been creatively named as 'Label1' and 'Label2'. The previous tale sounds good, but does it work in practice? Everybody who has a USB analogue converter from the November 2003 issue of *Elektor Electronics* and who has installed this month's ActiveX component, can try it out very quickly. The USB converter first has to be connected via a USB cable. Then you

should open the file 'test.htm'. If you have a web browser that supports ActiveX and JavaScript (such as Internet Explorer), you should see the web page as shown here. The values of the A/D converter are refreshed on the screen twice per second and the tick-boxes at the bottom of the screen let you change the state of the four digital outputs.

JavaScript is not very powerful when compared with other programming languages such as C, C++, Delphi, etc, but has the advantage that it is relatively easy to understand. Furthermore, everybody who has a standard Windows operating system installed on their PC can get started straight away.